IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Art Unit	: 1648	**Customer No.: 035811**
Examiner	: Emily M. Le	
Serial No.	: 10/600,361	
Filed	: June 20, 2003	Docket No.: 1187-R-02
Applicants	: Jean-Marie Andrieu	
	: Louis Lu	
Title	: METHODS, AND COMPOSITIONS	Confirmation No.: 7112
	: FOR A THERAPEUTIC ANTIGEN	
	: PRESENTING CELL VACCINE	
	: FOR TREATMENT OF	
	: IMMUNODEFICIENCY VIRUS	
		Dated: August 11, 2009

RESPONSE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is in response to the Official Action dated June 11, 2009.

Claim 44 is rejected as obvious under 35 USC §103(a) over US '177.

Claim 44 is not obvious under 35 USC §103(a) over US '177. Reasons are set forth below.

First, the Official Action states that the only difference between US '177 and Claim 44 is that US '177 did not pulse autologous dendritic cells with inactivated autologous HIV. The Official Action submits that, due to the high degree of genetic variability in the many types of known HIV isolates and the propensity of the HIV virus to mutate, it would have been *prima facie* obvious for one skilled in the art to replace the heterologous HIV of US '177 with an autologous HIV.

The Applicants respectfully disagree.

One reason is that US '177 is not relevant to addressing the technical problem solved by the claimed pharmaceutical compositions. Instead, the Applicants wish to point out the fact that the claimed pharmaceutical compositions are therapeutic vaccines and not preventive vaccines. A preventive vaccine would allow a healthy person to avoid HIV infection. However, a therapeutic vaccine has the effect of allowing patients that are already infected with HIV to

decrease and stabilize the amount of HIV in their blood. This is an important technical distinction.

US '177 tried to produce a preventive HIV vaccine. *See e.g.*, US '177 at paragraphs [0066] to [0070]. Indeed, US '177 showed *in vitro* the first steps toward obtaining a preventive vaccine and observed the reaction of the immune system in lymphocytes from a healthy donor. US '177 also observed a HIV specific proliferation and the apparent production of interferon-gamma (IFN-γ) by HIV specific cells.

However, the composition of US '177 was not demonstrated to produce a therapeutic vaccination effect using lymphocytes primed with dendritic cells loaded with inactivated HIV SF. Furthermore, US '177 never demonstrates the *in vitro* destruction of lymphocytes from healthy donors that were infected *in vitro* with HIV SF or, for that matter, any wild-type HIV strain. In conclusion, the vaccine of US '177 is a preventive vaccine and US '177 simply does not envision, disclose or otherwise relate to a therapeutic vaccine.

This means that one of ordinary skill in the art, would not recognize any suggestion in the disclosure of US '177 to prepare a therapeutic vaccine composition. Furthermore, if one of ordinary skill in the art would, for some reason, have been motivated to prepare a therapeutic vaccine such a person simply would not have considered US '177 to be relevant because it only relates to preventative vaccination. Stated differently, US '177 is not analogous art because it deals with preventive vaccines.

Second, one of ordinary skill in the art would not be motivated by US '177 to attempt the preparation of a therapeutic vaccine comprising autologous dendritic cells and autologous HIV. This is because one of ordinary skill in the art would never, on the basis of the disclosure in US '177, use autologous HIV in combination with autologous dendritic cells to prepare a therapeutic vaccine. Indeed, when trying to prepare a therapeutic vaccine, the Applicants surprisingly found that the technical problem was to reinforce the already existing, but insufficient, immune response to HIV in patients infected with this virus.

This is very different from the technical problem of US '177 which requires the *de novo* creation of immunity against the HIV virus. In fact, one of ordinary skill in the art would have had no indication of what type of virus to include in a therapeutic vaccine. Certainly, one of ordinary skill in the art would have had no reason, based on the disclosure in US '177, to combine dendritic cells and an HIV virus to produce a therapeutic vaccine.

Third, the Official Action states there is great genetic variation among the many different types of known HIV isolates due to the propensity of the virus to mutate and that it would have been *prima facie* obvious for one of ordinary skill in the art to use an autologous HIV virus.

This statement is divorced from reality. This is because the choice by the Applicants to use an autologous HIV was not a haphazard, accidental decision based on the propensity of the virus to mutate or the high degree of variability among different HIV strains.

Fourth, the Applicants would like to point out the fact of the matter is that AIDS is a pandemic and that numerous different, competing research teams have been trying for nearly three decades to produce effective treatments, such as vaccine based therapies, without success. Moreover, no other team of researchers has obtained the success and results of the Applicants. Indeed, as clearly shown in Fig. 3 of the Application, the claimed compositions allow the destruction of HIV infected cells. In fact, the Applicants conducted several different experiments and studies, as shown in the application and related publications, which have all demonstrated the physical destruction of $CD4^+$ lymphocytes super-infected by the HIV virus. It is very important to note that, over nearly three decades, such results have never been obtained by another team of researchers. This reality should not be disregarded and is a clear indication that the claimed compositions are not obvious.

Fifth, the Applicants wish to address several other aspects of the Official Action. One aspect is the fact that the Official Action appears to incorrectly rely on arguments which conflate anticipation and anticipated related doctrines with obviousness and obviousness related doctrines. This is apparent from the comments on page 8 of the Official Action directed to the application of the inherent anticipation doctrine in the present obviousness rejections. The Applicants again respectfully submit that this is inappropriate and note that the cases cited in support of the obviousness rejections, such as Atlas Powder Co. v. Ireco Inc. (190 F.3d 1342 (Fed. Cir. 1999)), relate to the application of the inherent anticipation doctrine in the context of 35 USC §102 anticipation not obviousness under 35 USC §103. Thus, the obviousness rejections in the Official Action are clearly inappropriate and should be withdrawn on this basis.

A second such aspect is the fact that page 7 of the Official Action states that "[w]hile the dendritic cells used by Belardelli et al. [(US '177)] are autologous, it is not readily apparent if the virus used by Belardelli et al. is also autologous [(emphasis added)]." However, then on page 8 of the Official Action the rejection inexplicably states that "Belardelli et al. teaches a

composition that is the same as instantly claimed." The Office cannot have it both ways. In other words, US '177 cannot somehow be asserted to be an anticipating reference merely for the purpose of permitting the impermissible use of an inherency type argument in the context of an obviousness rejection under 35 USC §103(a). Thus, the obviousness rejections are again clearly inappropriate and should be withdrawn on this basis as well.

Altogether, the above discussion clearly establishes that one of ordinary skill in the art would not have been motivated to modify US '177 or have reasonably expected, on so doing, to successfully produce the claimed therapeutic vaccine compositions. Stated differently, Claim 44 is not *prima facie* obvious over US '177.

The Applicants respectfully request withdrawal of the rejections of amended Claim 44 as obvious under 35 USC §103(a) over US '177.

Claims 52-56 are rejected as obvious under 35 USC §103(a) over the combination of US '177 and Lu.

Claims 52-56 are not obvious under 35 USC §103(a) over the combination of US '177 and Lu. This is because Lu fails to correct the deficiencies with regard to US '177 that are set forth above.

In light of the foregoing, the Applicants respectfully submit that the entire application is now in condition for allowance, which is respectfully requested.

Respectfully submitted,

T. Daniel Christenbury
Registration No. 31,750
Attorney for the Applicants

TDC/vbm
(215) 656-3381